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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,782	03/29/2004	Sutherland Cook Ellwood JR.	20028-7003	9480

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EXAMINER

RUDE, TIMOTHY L

ART UNIT PAPER NUMBER

2883

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/811,782

Applicant(s)

ELLWOOD, SUTHERLAND COOK

Examiner

Timothy L. Rude

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) 14-26 and 41-66 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 27-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20060409, 20060412</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of invention I in the reply filed on 13 April 2006 is acknowledged.

Claims 14-26 and 41-66 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 13 April 2006.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

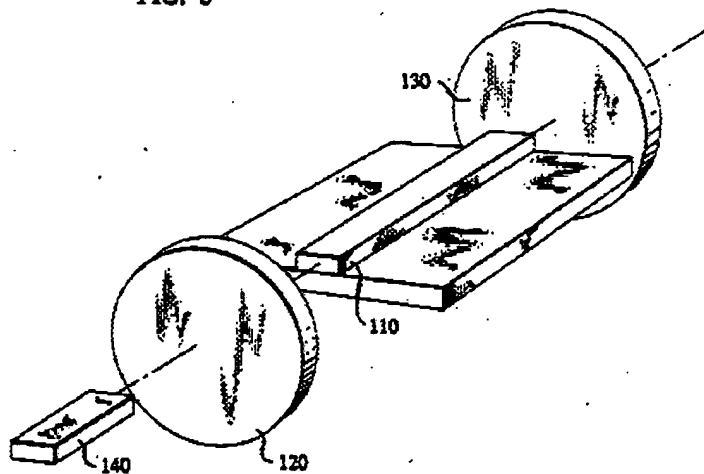
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 12, 27-35, 38, and 40 rejected under 35 U.S.C. 103(a) as being unpatentable over Dillon, Jr. et al (Dillon) USPAT 5,031,983.

As to claims 1, 2, 27, 28, and 40, Dillon discloses improvements to a prior art integrated magneto-optic device [col. 1, line 10 through col. 4, line 56] that is a radiation

Art Unit: 2883

wave intensity modulator, comprising: a first element for producing a wave component from a radiation wave [light source, 140, in Figure 6], said wave component having a polarization property wherein said polarization property is one polarization from a set of orthogonal polarizations [col. 1, lines 21 and 22 and items 120 and 130 in Figure 6]; an optical transport for receiving said wave component, said transport having a waveguiding region [YIG doped fiber],

FIG. 6

and one or more guiding regions coupled to said waveguiding region [regions between the polarizers and the YIG doped light guide in the integrated form of the device, col. 1, lines 52-60]; a transport influencer [magnetic coil, col. 7, lines 34-38], operatively coupled to said optical transport and having at least a portion integrated with one or more guiding regions of said one or more guiding regions [integrated form per col. 1, lines 52-60], for affecting said polarization property of said wave component responsive to a control signal; and a second element for interacting with said affected wave component wherein an intensity of said wave component is varied responsive to

said control signal [signal resulting in electromagnetic coil producing a field strength of 30 Oe, col. 7, lines 34-38]; wherein said first element and said second element are polarization filters [col. 1, lines 21 and 22].

Dillon does not explicitly disclose (illustrate) all of the details of the structure of the fully integrated device [see schematic representation at Figure 6].

Dillon teaches that all of the features may be incorporated in a fully integrated device [col. 1, lines 52-60] to serve as a building block for integrated optical devices.

Dillon is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add all of the details of the above structure into a fully integrated device to serve as a building block for integrated optical devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Dillon to contain all of the details of the above structure in a fully integrated device of Dillon to serve as a building block for integrated optical devices.

As to claims 3 and 29, Dillon discloses the modulator of claim 1 wherein said elements are integrated into said transport [integrated form of the device, col. 1, lines 52-60].

As to claims 4 and 30, Dillon discloses the modulator of claim 1 wherein said influencer produces a controllable magnetic field parallel to a propagation direction of said wave through said transport to alter said polarization property [col. 7, lines 34-38].

As to claims 5 and 31, Dillon discloses the modulator of claim 1 wherein said influencer alters said polarization property by changing a rotation angle of said wave component in a range from about zero degrees to about ninety degrees [col. 1, line 40].

As to claims 6 and 32, Dillon discloses the modulator of claim 1 wherein said transport is a fiber waveguide including a core and a cladding corresponding to one or more guiding regions of said one or more guiding regions and wherein said influencer includes a magnetic material integrated with said cladding [multi-layered YIG, col. 2, lines 55-65].

As to claims 7 and 33, Dillon discloses the modulator of claim 6 wherein said magnetic material includes permanent magnetic material [YIG, col. 1, lines 20-25].

As to claims 8 and 34, Dillon discloses the modulator of claim 6 wherein said magnetic material is selectively magnetized responsive to an electric current [magnetic coil, col. 7, lines 34-38].

As to claims 9 and 35, Dillon discloses the modulator of claim 6 wherein said magnetic material is integrated into said fiber waveguide [col. 1, lines 20-25 and col. 2, lines 55-65].

As to claims 12 and 38, Dillon discloses the modulator of claim 1 wherein said wave component may be extinguished [90 degrees to polarizer, col. 1, line 40].

3. Claims 10, 11, 13, 36, 37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dillon.

As to claims 10, 11, 13, 36, 37, and 39, Dillon discloses the modulator of claim 1.

Dillon does not explicitly disclose said set of orthogonal polarization includes right hand circular polarization and left hand circular polarization.

Dillon teaches reciprocal and anti-reciprocal light-rotating devices as devices suitable for the intended use as modulators [MPEP 2144.07]. Also, use of circular polarization vs linear polarization as an alternate mode suitable for light modulation has long been very well known in the art.

Dillon is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add right and left hand circular polarizers with or without crossed transmission orientation as an art recognized means suitable for polarizers and analyzers in a modulator.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Dillon with the right and left hand circular polarizers with or without crossed transmission orientation [crossed or

aligned transmission orientation] of Dillon as an art recognized means suitable for polarizers and analyzers in a modulator.

4. Claims 10, 11, 13, 36, 37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dillon in view of Conner et al (Conner) USPAT 5,548,422.

As to claims 10, 11, 13, 36, 37, and 39, Dillon discloses the modulator of claim 1.

Dillon does not explicitly disclose said set of orthogonal polarization includes right hand circular polarization and left hand circular polarization.

Conner teaches reciprocal and anti-reciprocal light-rotating devices as devices suitable for improving the contrast of the modulation [more uniform black, i.e., more total extinction in the off state, col. 13, lines 14-29]. Also, use of circular polarization vs linear polarization (or in addition to linear polarization) for polarizers and analyzers has long been very well known in the art.

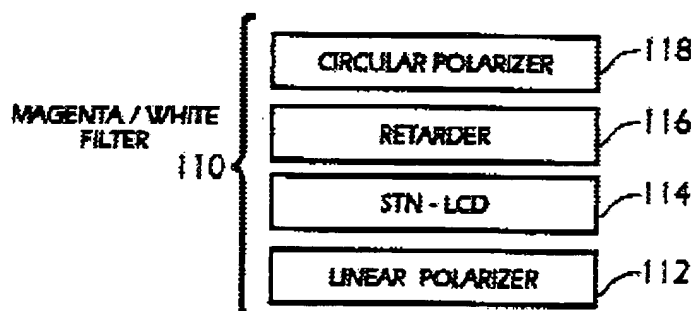


Fig. 11

Conner is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add right and left hand circular polarizers with or without crossed transmission orientation to improve contrast of the modulation.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Dillon with the right and left hand circular polarizers with or without crossed transmission orientation of Conner to improve contrast of the modulation.

References cited but not applied are relevant to the instant Application.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L. Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2883

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



tlr

Timothy L Rude
Examiner
Art Unit 2883



Frank G. Font
Supervisory Patent Examiner
Technology Center 2800